

## **REMARKS**

By the amendments made above, claim 1 is revised and new claims 11-13 are added to place this application in immediate condition for allowance. Currently, claims 1, 2, 5-8, and 11-13 are before the Examiner for consideration on their merits.

In review, the Examiner newly rejects all claims under either 35 U.S.C. § 102(b) or 35 U.S.C. § 103(a) based on United States Patent No. 5,977,017 to Golden. In the alternative, claims 1, 2, 7, and 8 are rejected under 35 U.S.C. § 103(a) based on the combination of Golden and United States Patent No. 6,632,524 to Toshima. Claim 5 stands rejected as being obvious under 35 U.S.C. § 103(a) based on Golden and Toshima when combined with United States Patent No. 6,827,917 to Ward et al. (Ward).

Applicants respectfully traverse the rejections on the grounds that the Examiner has neither established a *prima facie* case of anticipation or obviousness against claim 1, and the rejections must be withdrawn. The traversal of the rejections is set out below under the headings of the applied prior art.

### **GOLDEN Claims 1, 2 and 5-8**

In making the rejection, the Examiner has interpreted claim 1 to mean that the claimed method only involves the step of producing a perovskite complex oxide, and has interpreted the limitations pertaining to the amorphous substance as a product alone, thereby ignoring the limitations regarding its formation. From this standpoint, the Examiner contends that Golden only needs to teach the step of heating an

amorphous precursor to produce a perovskite complex oxide in order to meet the limitations of the claims.

In the alternative, the Examiner contends that even if the precursor of Golden was not amorphous, it would be obvious that the precipitate was amorphous by stating "the precipitate is based on the homogenous mixture is (sic) heated only to form a precipitate and then further heated to produce a perovskite structure."

Applicant submits that this position is flawed for at least three reasons. First, the interpretation of the claim is improper since the claim is in the form of a method; it is not a product by process claim. Therefore, the Examiner must consider the processing associated with the amorphous substance and when doing so, the only conclusion to draw is that Golden does not teach the formation of such an amorphous substance and heating it to form the claimed perovskite complex oxide.

In fact, Golden teaches the formation of a precursor substance that is not even remotely related to the claimed amorphous substance and its method of making.

As specified in claim 1, the amorphous substance is a reaction product from an aqueous solution containing R and T ions using a precipitant, a reducing agent, and conditions of pH 6 to 12.

Golden, on the other hand, forms a precipitate precursor which is not a reaction product. The Examiner's attention is directed to col. 6, lines 24-26 and col. 8, lines 12 and 13, wherein Golden describes the process of making the precursor, which is not a reaction product, but is the result of an evaporation of a thick syrup to form a solid foam. The syrup is formed by a malic acid solution technique that uses a thick solution

containing a lanthanide salt, and salts of elements B and M with a malic acid solution.

Example 1 specifically describes vaporizing a part of the water of solution to produce the syrup and reducing the solution to 29% of its original volume. The thus-formed syrup is then heat treated at 200 °C for 1 hour to convert it to a solid foam, see col. 8, lines 11-13. A fair reading of this process is that there is no chemical reaction occurring during the vaporizing step to make the syrup nor the evaporation step to create the solid foam.

First, the precursor of Golden is made by an entirely different process than that the process of forming the amorphous substance using an aqueous solution of R and T ions, a precipitant, a reducing agent and pH of 12. Second, the Examiner cannot ignore the limitations regarding how the amorphous substance is made and the rejection based on 35 U.S.C. § 102(b) is fatally flawed and must be withdrawn.

Even if the Examiner were to insist that the amorphous substance of claim 1 must be interpreted as a product by process term so that the processing steps are ignored, this stance cannot be maintained when considering new claim 12. This new claim actively recites the process of forming the amorphous substance by precipitation. The Examiner is now required to consider whether such a precipitation step is present in Golden and can only conclude that it is not, thereby mandating that claim 12 is not anticipated by Golden.

Second, the Examiner's position that the precursor of Golden is also amorphous to support the anticipation rejection is speculation at best and cannot stand up to scrutiny. While it is true that the Examiner can assert, in some instances, that a prior

art product would inherently contain a property of a claimed product, this assertion must be buttressed with some objective basis to support such a conclusion, e.g., a similarity in processing. In the instant case, there is no similarity between Golden and the invention when considering the way in which the precursor is made. The Examiner has no factual basis to conclude inherency in light of the radically different way that Golden forms the precursor as compared to Applicants' method. The Examiner's statement that just because the homogenous mixture is just heated is not sufficient to support the presumption of an amorphous precursor. Applicants have pointed out that no reaction takes place in the Golden process so it could also be said that there is no amorphous substance in Golden. Therefore, even if one were to consider the amorphous substance to stand alone and not be limited by its processing as argued earlier, the Examiner has not met his burden to show inherency and the rejection fails for this reason.

Third, the conclusion that it would be obvious that the precursor of Golden would be amorphous is not a legitimate basis to support the rejection under either 35 U.S.C. § 102(b). Either the precursor is amorphous, expressly or inherently, or it is not. The arguments above have shown that it cannot be presumed to be so since the processing of Golden is entirely different from that of the Applicants and the Examiner has not shown any other reasoning to support the inherency contention.

The Examiner may be meaning to say that it would be obvious to modify Golden and create an amorphous precursor for making of the perovskite complex oxide. However, this is also speculation on the Examiner's part since there is no factual basis

to support such a contention. The reasoning that the homogenous mixture is heated to only form the precipitate does not relate to a suggestion that the precursor is recognized not to be amorphous but could be made amorphous somehow. This line of reasoning in the rejection, if it is the intended reasoning, is also flawed and cannot support a rejection under 35 U.S.C. § 103(a).

Going back to the requirement that the processing of making the amorphous substance of claim 1 must be taken into account, it is submitted that Golden does not teach a precipitating step practiced in a pH of 6 to 12. Referring to the Examples of the instant application, it can be seen that the reaction method of making the amorphous substance is carried out under pH conditions of 6 to 12. This is accomplished by adding basic agents such as alkaline carbonate or carbonate-containing ammonium. As explained on page 7, lines 8-16 of the specification, the pH has a role in obtaining the amorphous precursor.

In contrast, the malic acid solution technique of Golden is carried out under acid conditions. While the pH is not specified in Golden, a fair reading of this reference would indicate that the claimed pH range is not present. In Examples of Golden involving a solution to form the precursor, the malic acid is added to the prepared solution, and this infers that the range of pH of the processing is less than the claimed range of 6 to 12. Therefore, it is argued that Golden also fails to teach this process step and claim 1 is distinguished from this reference when taking into account the processing limitations on the amorphous substance. In the alternative, claim 12 clearly defines a step having the controlled pH and such is not found in Golden.

While Applicants have argued that there is no basis to conclude that the invention of claims 1 and 12 is obvious over Golden, if such a stance were maintained or repeated using other art, it would be in error given the unexpected improvements obtained by the invention. As explained on page 2, line 7 of the instant specification, citric acid decomposition processes produce NO<sub>x</sub> and other toxic gases during drying and baking. These same drawbacks would be expected with Golden as a result of the materials used by Golden and the syrup formation step and evaporation steps. The foam of Golden is believed to contain nitrate compounds such as cobalt or calcium nitrate that would require toxic gas treatment equipment and severely hamper the economics of making perovskite. In Example 1, Golden uses Ca(NO<sub>3</sub>)<sub>2</sub> and Co(NO<sub>3</sub>)<sub>2</sub>, which would decompose and produce NO<sub>x</sub> gases during the heating step to form perovskite.

The method of claim 1 is advantageous in that it provides a useful amorphous precursor that has high specific surface area, see page 4, lines 6-13, and one useful in production of a perovskite complex oxide using low-temperature, short period heat treating conditions without the need for toxic gas treatment measures. These improvements are not in the least expected in Golden and rebut any contention of obviousness.

Yet another distinction between Golden and the invention is that the precursor material of claim 1 is a powdery starting material. Golden uses a foam as the precursor material, see col. 8, lines 13 and 14 and fails to teach this aspect of claim 1.

Lastly, claim 11 is also patentable over Golden since the limitations of this claim are not taught or suggested. In the event that the Examiner again gives no weight to the process related limitation of claim 11, it must be considered for claim 13, and this claim is clearly not taught in Golden.

#### Golden and Toshima Claims 1, 2, 7, and 8

In this rejection, the Examiner interprets the claims to include the processing limitations and admits that Golden fails to teach that which is claimed. In response to this deficiency, the Examiner relies on Toshima and alleges that it would be obvious to employ the method of Toshima as a substitute for the method of Golden, thus arriving at the invention of claim 1.

Applicants traverse this rejection on two grounds. First, the Examiner has not supplied a reason to make the modification. In the rejection, the Examiner cites Toshima to teach a method that avoids forming a hydroxide when forming the precipitate as the reason for the modification of Golden. However, this approach makes no sense since the desire to avoid the formation of the hydroxide is peculiar to Toshima and has nothing to do with Golden. The real inquiry is what reason exists to modify Golden. The Examiner has merely cited a feature of the process of Toshima, which results in stable formation of nickel powder as explained in col. 7, lines 15-20. Regardless of the aim of Toshima, the answer to the inquiry as to why modify Golden is that there is no reason to do so. Lacking the required reasoning to support the modification of Golden, a *prima facie* case of obviousness is not established.

A second reason why the rejection fails is that the Toshima process is unrelated to making a precursor and then heating the precursor to form a perovskite complex oxide. Since Toshima is unrelated to Golden in terms of making a precursor, there is no reason to combine the two references, and even if they were combined, the method of claim 1 is still not taught.

To support the rejection, the Examiner cites col. 6, lines 1-5 and 35-37. This disclosure of Toshima relates to the production of a nickel powder by direct reduction of nickel ion (a dissolved nickel salt) using a reducing agent of hydrazine and avoiding the formation of nickel hydroxide as an intermediate. The nickel metal powder obtained from the nickel salt of Toshima is not amorphous but rather crystalline. Moreover, the thus-produced nickel powder would have no use as a precursor to be heat treated in order to form a perovskite complex oxide. Given the totally different aim of Toshima, one of skill in the art would not be motivated to employ the teachings of Toshima as a substitute for those employed by Golden to form a perovskite complex oxide. To assert otherwise is the blatant use of hindsight and such an assertion could not be sustained on appeal.

It is true that a perovskite structure is disclosed in Toshima. However, it is in the context of forming barium titanate having a perovskite structure, see col. 5, line 64 to col. 6, line 10, via contacting oxide-coated nickel particles with a solution of soluble titanium-containing compound and a soluble barium-containing compound and a heat treatment. This precursor formation is completely unrelated to the formation of the



nickel powder of Toshima, and it does not relate to the claimed amorphous substance or its manufacture. Therefore, this aspect of Toshima adds nothing to the rejection.

Also, the Examiner fails to consider that if the method of Toshima were used as a substitute for the one employed by Golden, the Toshima method would still have to produce an amorphous substance as the precursor to meet the limitations of claim 1. As set out above, Toshima does not produce such a substance and its combination with Golden, even if maintained, still fails to establish a *prima facie* case of obviousness.

#### Ward and Claim 5

The reliance on United States Patent No. 6,827,917 to Ward et al. to reject claim 5 is noted. However, Ward et al. does not make up for the failings of Golden and Toshima so even it were used, the combination of the prior art still fails to establish a *prima facie* case of obviousness.

#### Obviousness-Type Double Patenting

In response to the double patenting rejection, a Terminal Disclaimer is submitted herewith, and this effectively removes this rejection.

#### Summary

To recap, the rejection is flawed for the following reasons:

1) The Examiner is incorrect in ignoring the method limitations regarding how the amorphous substance is made, and Golden does not anticipate the method

limitations of claim 1 and 11, including both the process steps, the pH requirement, and aqueous solution limitations.

2) Whether or not the Examiner agrees with (1) above, the method limitations must be considered in claims 12 and 13, and these claims are clearly patentable over Golden.

3) The contention that the precursor of Golden is inherently amorphous is not supported with objective facts and this limitation is also missing from Golden, thus precluding a rejection under 35 U.S.C. § 102(b).

4) The assertion that the amorphous nature of the precursor is obvious is also improper since this is not a proper characterization of the issue of anticipation or obviousness.

5) The implicit contention that it would be obvious to produce an amorphous precursor based on Golden is hindsight.

6) The powdery starting material limitation is missing in Golden.

7) The combination of Golden and Toshima fails for a lack of reasoning to modify Golden and the fact that Toshima does not even teach the claimed amorphous substance or method to make it.

8) Any other allegations of obviousness are rebutted by the unexpected improvements attained by the invention.

Accordingly, the rejections as applied to claim 1 must be withdrawn, and this claim should be passed onto issuance along with its dependent claims 2 and 5-8.

Claims 11-13 are also in condition for allowance since they are separately patentable over the applied prior art.

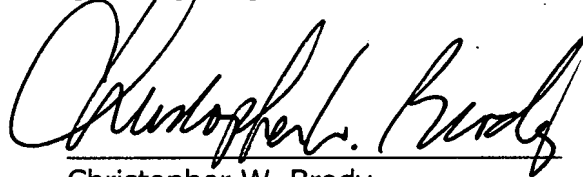
If the Examiner believes that an interview with Applicants' attorney would be helpful in expediting allowance of this application, the Examiner is respectfully requested to telephone the undersigned at 202-835-1753.

Again, reconsideration and allowance of this application is respectfully requested.

The above constitutes a complete response to all issues raised in the Office Action dated December 14, 2006.

A petition for a three month extension of time is hereby made. A check in the amount of \$1,150.00 is enclosed to cover the extension of time fee (\$1,020.00) and the Terminal Disclaimer fee (\$130.00). Please charge any fee deficiency or credit any overpayment to Deposit Account No. 50-1088.

Respectfully submitted,  
CLARK & BRODY

A handwritten signature in black ink, appearing to read "Christopher W. Brody", written over a horizontal line.

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